

NAT SCREENING FOR HCV, HIV AND HBV ON BLOOD DONATIONS IN ITALY (P-137)

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Background: NAT technology to screen blood donors for HCV RNA has been introduced in Italy since 2001. In the following years NAT testing was also introduced for HIV RNA and, recently, for HBV DNA.

Aims: The study was organized by the Italian Transfusion Medicine and Immunoematology Society (SIMTI) and was focused: a) to monitor epidemiological data on new direct HCV, HIV and HBV markers, b) to review the transfusion-transmitted diseases residual risk and c) to study serological and clinical patterns in the first phases of the infections.

Methods: Data were collected by questionnaires sent each year, from 2001 to 2005, to all 300 Italian Transfusion Services. Data were obtained on 8,297,783, 5,669,421 and 1,298,187 blood units tested for HCV RNA, HIV RNA and HBV DNA, respectively. NAT tests were carried out using Roche Diagnostics kits in pools of 8-24 samples and Chiron Blood Testing kits mainly in single test and in only few Transfusion Services in pools of 8 samples.

Results: 22/8,297,783 units, 18 from repeat (RD) and 4 from first time (FT) donors, were found HCV RNA pos / anti-HCV neg. Of these, 9 had abnormal ALT and 13 had normal values of ALT, a test that is mandatory in Italy for blood screening). 13/ 5,669,421 blood units (12 RD and 1 FT donor) were found HIV RNA pos / anti-HIV neg and 80/1,298,187 blood donors were HBV DNA pos/HBsAg neg. Among the 80 HBV DNA positive donors serological and anamnestic informations were obtained on 37 (12 FT and 25 RD). The serological patterns allowed to identify only 3/37 subjects in the window phase (8.1%) who seroconverted during follow up. The remaining 91.9% presented other serological HBV markers and a 'low carrier' pattern. The yields were 1.6/106 for HCV, 2.2/106 for HIV and 61.6/106 for HBV. The yields were quite different for HBV in the different Italian areas: 103/106 in the North, 30/106 in Central Italy and 214/106 in the South and Islands.

Conclusions: Considering that in Italy 2.5 million of haemocomponents are collected per year the introduction of NAT testing allows 10 units potentially infectious for HCV or HIV to be identified in one year and reduces the residual risk of transmitting HCV or HIV via transfusion to 0.2 and 1.8 units per million, respectively. In addition the recent introduction of HBV NAT screening shows a quite unexpected high number of donors positive for HBV DNA in absence of HBsAg. Since in Italy no other serological HBV markers beside HBsAg are mandatory for blood donors screening, HBV DNA screening might be an important selection criterium to improve the safety of blood transfusion.